



**NATIONAL  
WEATHER  
SERVICE**

# October-December 2023 Outlook: Perspective for the Lower Rio Grande Valley/Deep S. Texas Region

August 29, 2023

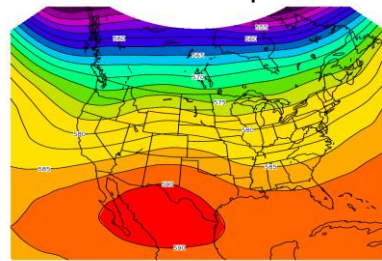
Barry Goldsmith, NWS Brownsville/Rio Grande Valley, Texas

Record Heat Dominated June-September. October Should Stay  
Warm...but Will Rains Come?

Extreme (Level 3) Drought  
San Benito, TX Sept. 24, 2023



"La Canícula" Ruled September 2023



Low water levels, Falcon  
Reservoir (Aug. 2022); similar  
look in late September 2023



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# September's Swelter - 2023

- The “heat dome” (La Canícula) covered the Valley for all of September.
- Record to near-record heat continued in September.** September (below) followed meteorological summer (June-August) and astronomical summer (June 21-September 22), and the year-to-date was at or near the warmest all-time for all locations.
- Drought** became severe to extreme (Level 2 and 3) for most areas by the end of September, as monthly rains were far short of average, especially in most of the Rio Grande Valley. A couple more large wildfires were noted during the first half of the month.
- The summer harvest was heavily impacted by the heat and drought.** Cotton, onions, and hay were just a few crops that had production loss. Stage 2 water restrictions were implemented for more than a half-dozen communities as Amistad-Falcon storage remained below 25 percent, falling to 22 percent by month's end.
- Rainfall was 5-25% of average (right) for all but a few areas through the 27<sup>th</sup>.



Maximum 26-Day Mean Avg Temperature  
for Brownsville Area, TX (ThreadEx)

Click column heading to sort ascending, click again to sort descending

Rank	Value	Ending Date	+2.7°	Missing Days
1	88.8	2023-09-26		0
2	86.1	2016-09-26		0
3	85.5	2018-09-26		0
4	85.1	1920-09-26		0
5	85.0	1900-09-26		0
6	84.9	2019-09-26		0
7	84.9	1970-09-26		0
8	84.8	1980-09-26		0
9	84.5	2005-09-26		0
10	84.3	2011-09-26		0

Period of record: 1878-01-01 to 2023-09-26

Maximum 26-Day Mean Avg Temperature  
for HARLINGEN, TX

Click column heading to sort ascending, click again to sort descending

Rank	Value	Ending Date	+0.7°	Missing Days
1	87.5	2023-09-27		1
2	86.8	2016-09-27		0
3	85.0	2019-09-27		0
4	84.8	1950-09-27		0
5	84.7	1912-09-27		0
6	84.6	1931-09-27		0
7	84.6	2011-09-27		1
8	84.6	1959-09-27		0
9	84.5	1941-09-27		0
10	84.3	2005-09-27		2

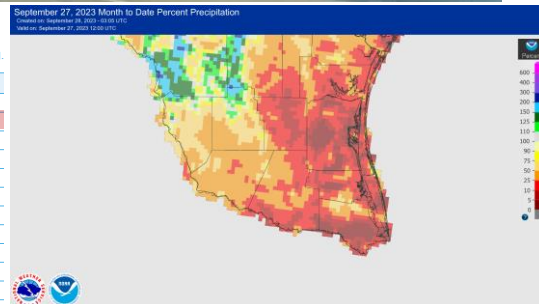
Period of record: 1912-02-07 to 2023-09-27

Maximum 26-Day Mean Avg Temperature  
for McAllen Area, TX (ThreadEx)

Click column heading to sort ascending, click again to sort descending

Rank	Value	Ending Date	-0.3°	Missing Days
1	89.8	2016-09-26		0
2	89.7	2023-09-26		0
3	87.8	2011-09-26		0
4	87.7	2018-09-26		0
5	87.0	2019-09-26		0
6	86.8	2017-09-26		0
7	86.4	2005-09-26		0
8	86.1	1980-09-26		0
9	85.9	2015-09-26		0
10	85.8	1985-09-26		0

Period of record: 1941-06-01 to 2023-09-26



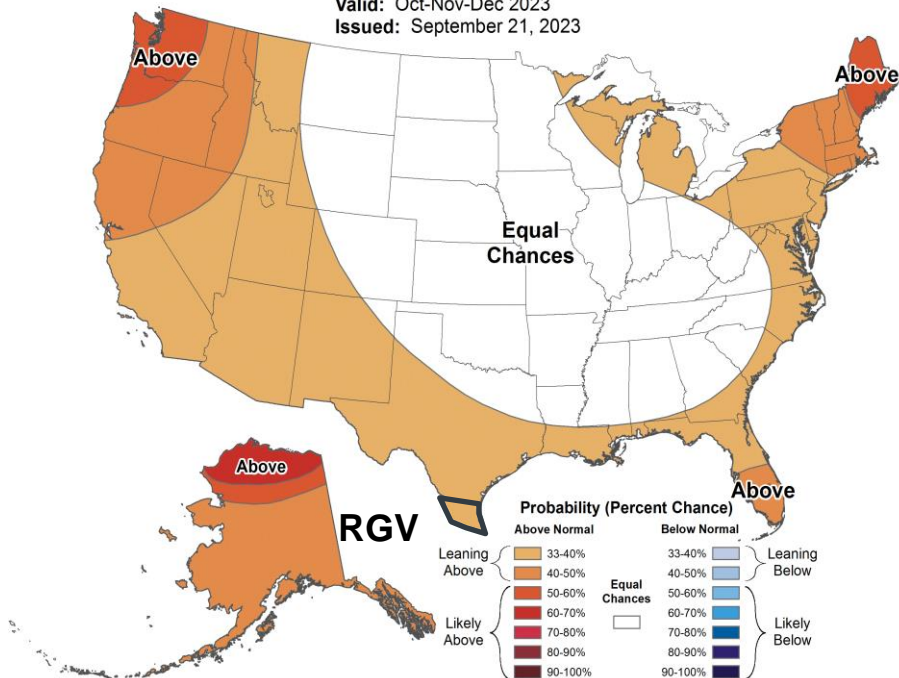
# Seasonal Forecast, October-December 2023 - USA



## Seasonal Temperature Outlook



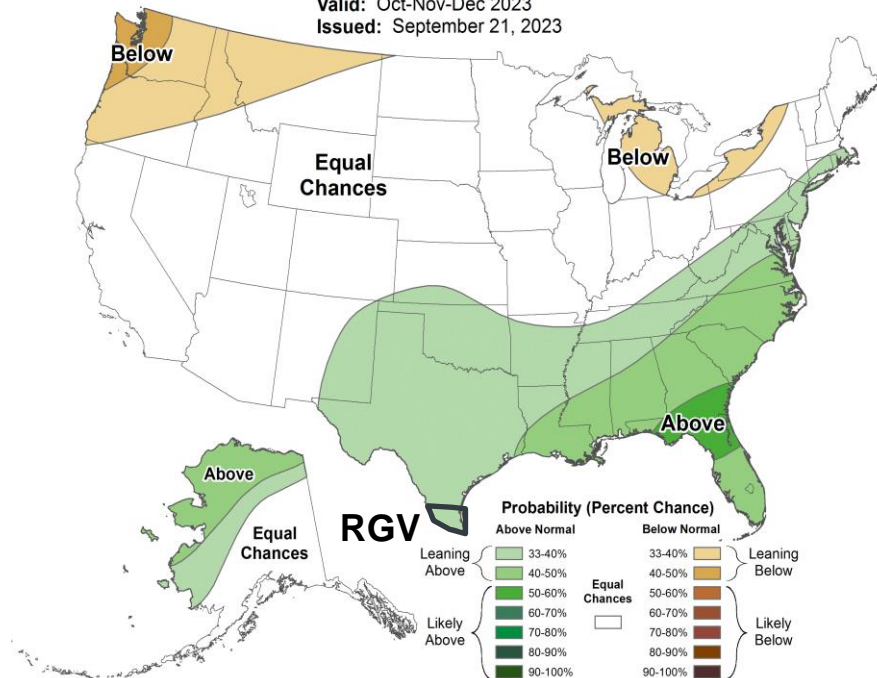
Valid: Oct-Nov-Dec 2023  
Issued: September 21, 2023



## Seasonal Precipitation Outlook



Valid: Oct-Nov-Dec 2023  
Issued: September 21, 2023



# Key Takeaways: October-December 2023

- Confidence remains **high for continued warmth in October and early November**. Confidence is **also high on drought** to persist through November, likely Moderate (level 1 of 4) to Severe (level 2 of 4). A strengthening El Niño suggests increasing chances for better rain, especially by December – but confidence is low-medium based on other factors.
- Breakdown:
  - **Above average warmth** is favored for the period. **Record to near-record warmth is now likely** for all locations by the end of the year, following a very hot June-September period and an above average January-March.
  - Reservoir levels at Falcon were at or near record lows for late September – values not seen since 1956 and 2002. Unknown for October and early November are inflows from rainfall or tropical events (waves/cyclones) from the Eastern Pacific basin. The **warm forecast for the basin headwaters suggests continued evaporation rates into November** – if the rains don't come.
  - **Stage 2 and 3 water conservation was implemented in more than a half-dozen RGV municipalities by the end of September. If the rains don't come, more communities will be added.**
  - Rapid wildfire growth remains an issue if “dry” fronts become dominant in mid to late autumn, locking in Severe (level 2) to Extreme (level 3) Drought. Unless rains arrive, this will require continued **vigilance and wildfire prevention actions through November or longer**.
  - **October**, followed by late season El Niño influences, will **determine the eventual “sense” of the last quarter of 2023**. There are **nearly equal probabilities** of **helpful rains** for both the basin and the Valley's detention/drainage system – or **continued dryness**. Confidence is **low** on either outcome.







# The “Why” of the Forecast: El Niño to Become Strong; Favors a Warm Autumn but an uncertain early winter



The strengthening El Niño combined with expected early autumn atmospheric patterns and other “teleconnections” **leans toward warm to hot conditions through October**



Dryness/drought trends will range from slight improvements to status quo...but **confidence is low-medium**.



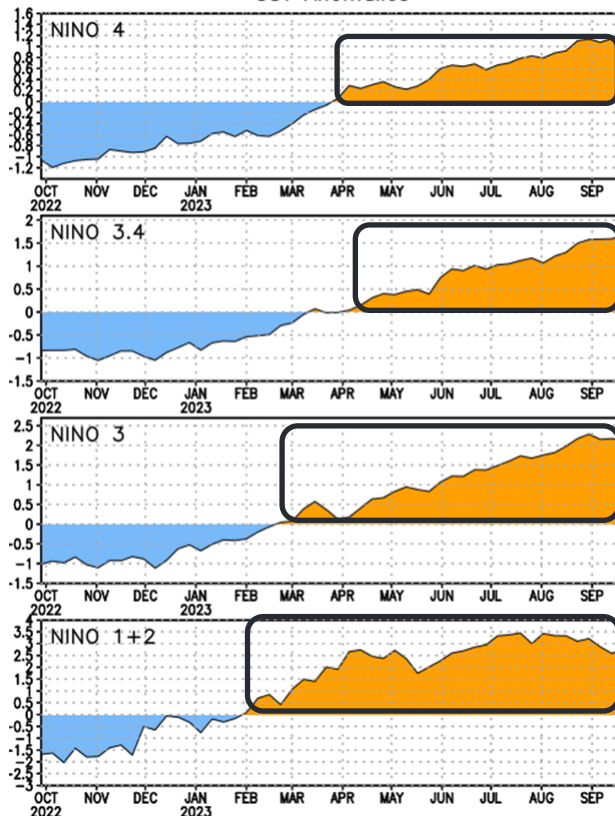
El Niño could begin to increase the subtropical jet (favored for precipitation) by Thanksgiving or sooner; if combined with cold fronts, **would assist in notable rainfall, especially in December.**



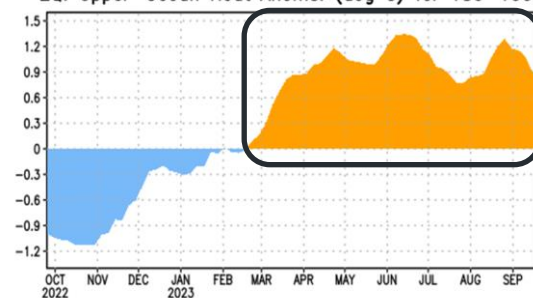
\*Above right: Oceanic Niño Index. Values below -0.5 (light blue) indicate a 3-month La Niña episode. El Niño has a 71% chance of becoming strong (+1.5°C ONI, top right) by winter.

Year	DJF	JFM	FMA	MAM	AMJ	MJJ	JJA	JAS	ASO	SON	OND	NDJ
2021	-1.0	-0.9	-0.8	-0.7	-0.5	-0.4	-0.4	-0.5	-0.7	-0.8	-1.0	-1.0
2022	-1.0	-0.9	-1.0	-1.1	-1.0	-0.9	-0.8	-0.9	-1.0	-1.0	-0.9	-0.8
2023	-0.7	-0.4	-0.1	0.1	0.5	0.8	1.1					

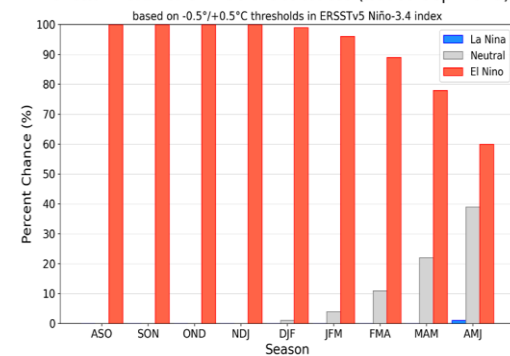
SST Anomalies



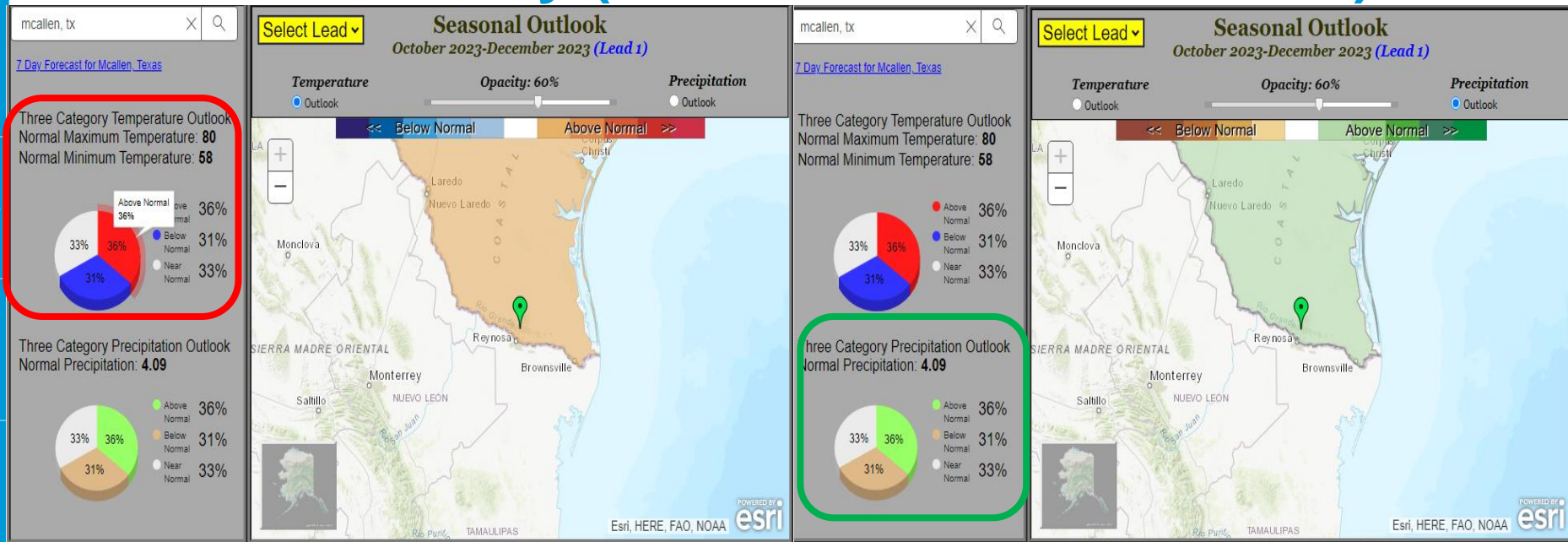
EQ. Upper–Ocean Heat Anoms. (deg C) for 180–100W



Official NOAA CPC ENSO Probabilities (issued Sep. 2023)



# The October-December 2023 Outlook: Rio Grande Valley (McAllen as Anchor Point)

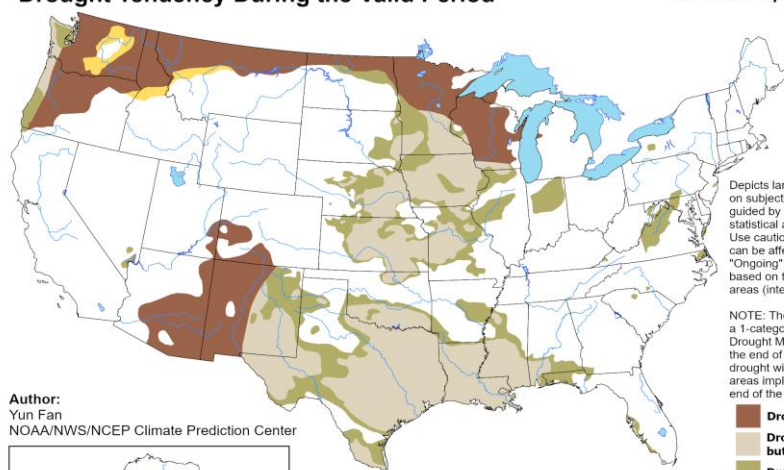


- Temperature: A **36 percent chance of above average**. A **31 percent chance for below** average: RGV averages: Afternoon – 90, falling to around 70 by the end of December. Morning: 68 to 73, falling to falling 47 to 52 by the end of December.
- Precipitation: A **36 percent chance of above average**, a **31 percent chance for below average**. RGV averages: 4.5 to 7 inches (from west to east)

# The October-December 2023 “Droughtlook”

## U.S. Seasonal Drought Outlook Drought Tendency During the Valid Period

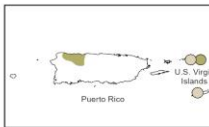
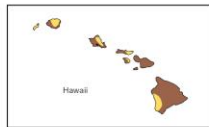
Valid for September 21 - December 31, 2023  
Released September 21, 2023



Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. “Ongoing” drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

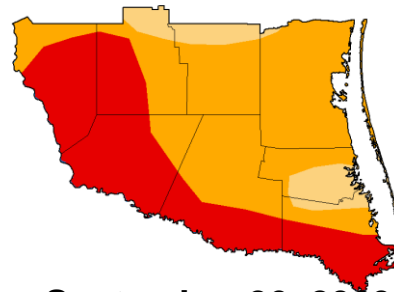
Author:  
Yun Fan  
NOAA/NWS/NCEP Climate Prediction Center



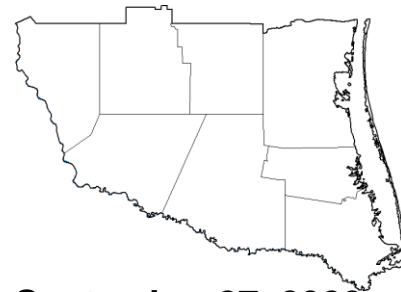
- Drought persists
- Drought remains, but improves
- Drought removal likely
- Drought development likely
- No drought



<https://go.usa.gov/3eZ73>



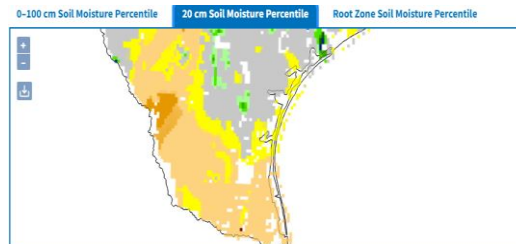
September 26, 2023



September 27, 2022

### Drought Classification

- None
- D0 (Abnormally Dry)
- D1 (Moderate Drought)
- D2 (Severe Drought)
- D3 (Extreme Drought)
- D4 (Exceptional Drought)
- No Data



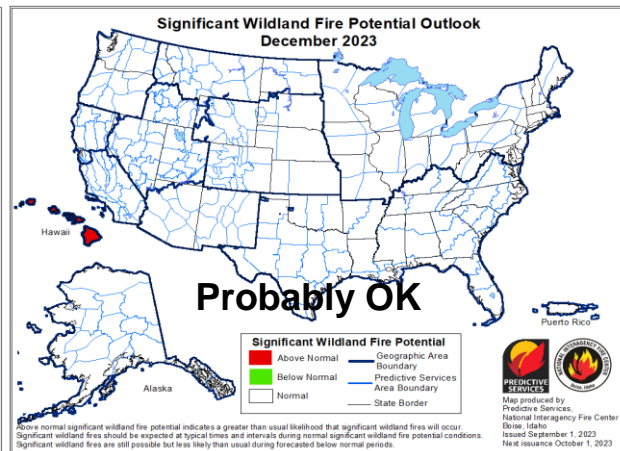
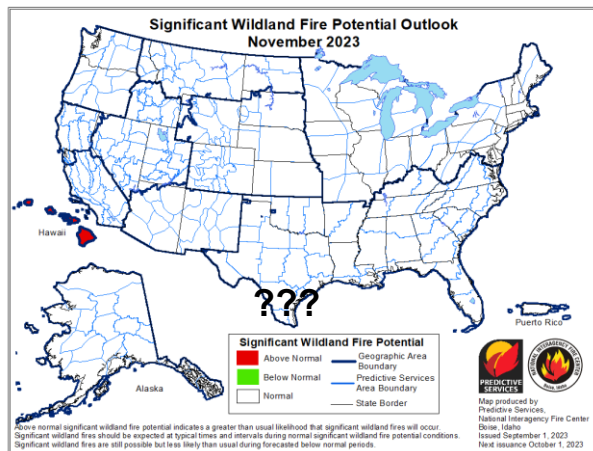
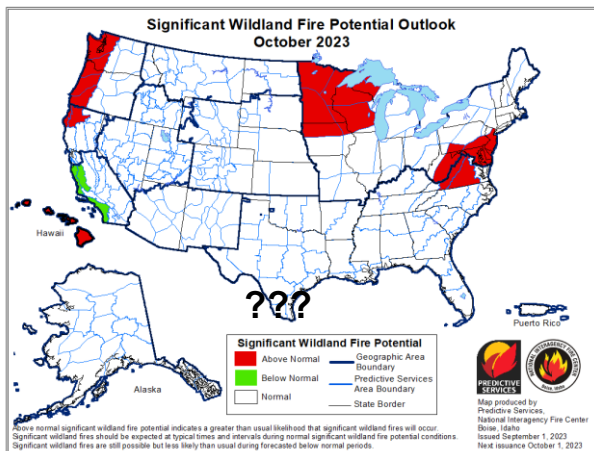
- Drought worsened in September 2023, as expected.** 4” (depth) Soil moisture varied from 10 to 20 percent of average through most of September. Departure from average rainfall ranged from 10-50 percent of average in September, lowest near the coast.
- October is more uncertain** as pattern shifts may bring occasional “coverage” rain events with fronts and/or tropical moisture feeds. **If some rain falls**, drought will remain **but improve one category**. If rains are fleeting, conditions will likely continue at **Moderate to Extreme levels**.



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# Wildfire Spread Potential Should Reduce if Rains Come



**Low grass fuel loads are common** across many areas, based on the record-hot and generally dry June-September.

There are still pockets of heat/drought cured rangeland and brush at the end of September. Until soaking rains and cooler (but still moist) conditions arrive, **there remains a wildfire spread concern to begin October**, and potentially into November if dry (but warm) air follows early season fronts.

Later November through December should see **some improvement with the better chances for moisture** – in the form of wetting rain, drizzle, or humidity. Confidence is low-medium on wet or dry outcomes by late season.

Could this scene repeat in September or October?

**Granjeno Wildfire, Hidalgo County near the Rio Grande, August 10, 2023**





# Wildfire Prevention Review



- This **remains critical** through autumn, especially if severe to extreme drought continues over fuel-loaded rangeland north of the populated Valley. The 300+ acre fire at Santa Ana NWR happened in September, as did a similarly large fire in Starr County.
- Continue to focus on **farm, ranch workers, and other persons who might drive hot vehicles** on parched brush on critical/near-critical days – especially low humidity, breezy days following fronts.



# Infographics for Wildfire Prevention

## Fire Weather SAFETY TIPS

- Be careful to not drag trailer chains that could cause sparks.
- Do not park on dry grass.
- Avoid outdoor burning and check recently burned piles for flare-ups.
- Clear out dead vegetation from around your home.
- Be careful when welding in dry grass.



## Consejos de Seguridad Contra Incendios

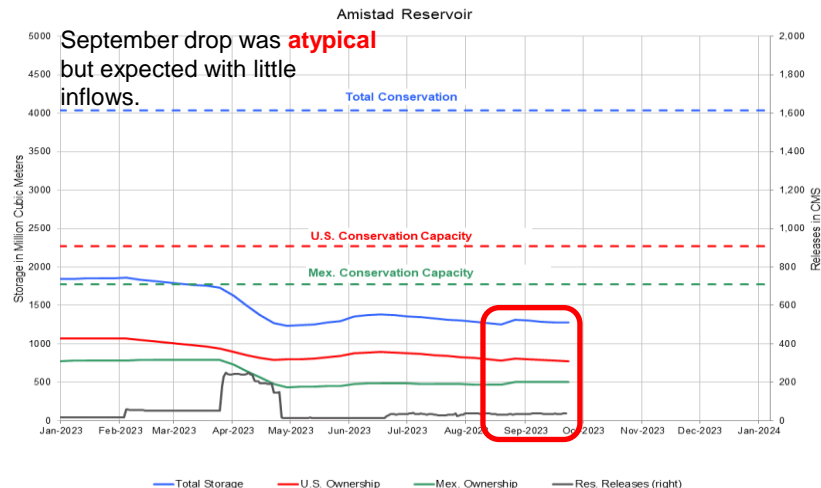
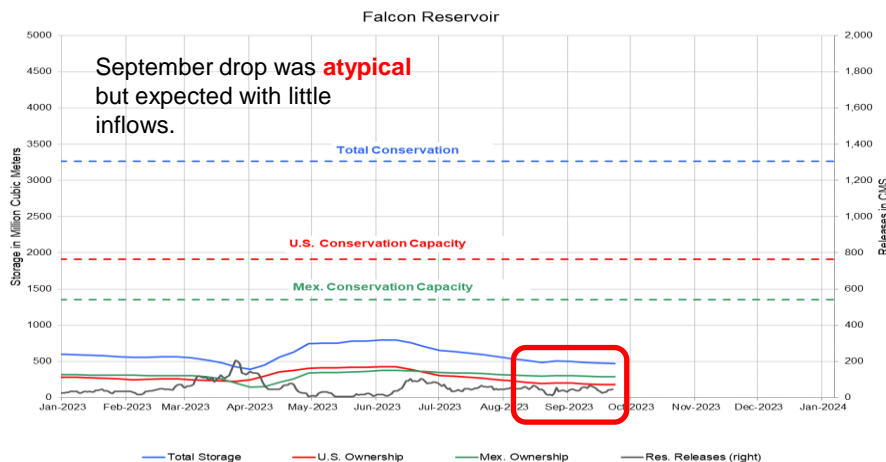
- Tenga cuidado de no arrastrar cadenas de remolque que podrían provocar chispas.
- No se estacione sobre césped seco.
- Evite las quemaduras al aire libre y revise las pilas recientemente quemadas para detectar brotes de fuego.
- Elimine la vegetación muerta alrededor de tu casa.
- Tenga cuidado soldar en hierba seca.



- ~50 in all (20 in Spanish)!
- Thanks to **Texas A&M Forest Service** for Many of These



# Falcon continued steady drops into late September, near record lows



- Falcon dropped from **15.3** percent following Harold to **13.95** percent on September 29<sup>th</sup>. This level was near or at record lows for this date in 1956 (Great Southern Plains Drought). Unless there's an influx of tropical moisture from the eastern Pacific in October or early November, any rains that fall in the basin's headwaters will only increase levels incrementally, with the **best case a rise near 20 percent**.
- Amistad continued its slow drop into September, down to **31.3** from **32.5** percent following Harold on August 28<sup>th</sup>. Still **very low**. Unless there's a similar influx of tropical moisture from the eastern Pacific, rains that fall in the basin's headwaters/tributaries may only push levels as high as **40 percent**.

# Water Conservation is (still) Key!

The screenshot displays the Texas Water Development Board (TWDB) website. At the top, the TWDB logo is on the left, and a search bar and social media links (Facebook, Twitter, LinkedIn, YouTube, Instagram, RSS) are on the right. Below the header is a navigation menu with links: Home, Board, Financial Assistance, Water Planning, Groundwater, Surface Water, Flood, Drought, Conservation, Innovative Water, and Data & Apps. The main content area is titled "Water Conservation" and features three featured programs: "Conservation Education Programs of the TWDB", "MAJOR RIVERS A Water Education Program for Texas" (showing a cartoon of a cowboy on a horse), and "Raising Your Water IQ A Water Conservation Curriculum for Middle School" (with the "WATER IQ Know your water." logo). Below these, a paragraph states the mission of the water conservation staff. To the right, there are two vertical lists of links: "Best Management Practices" (Agriculture, Literature, Resources, Education, Outreach, Municipal, Workshops & Presentations, Conservation Staff) and "Drought" (Rainwater Harvesting, Water Reuse).

**Texas Water Development Board**

Home Board Financial Assistance Water Planning Groundwater Surface Water Flood Drought Conservation Innovative Water Data & Apps

## Water Conservation

**Conservation Education Programs of the TWDB**

**MAJOR RIVERS**  
A Water Education Program for Texas

**Raising Your Water IQ**  
A Water Conservation Curriculum for Middle School

**WATER IQ**  
Know your water.

The mission of the water conservation staff is to provide leadership, planning, education, information, technical assistance, and agricultural financial assistance for water conservation in Texas.

In [Water for Texas: 2017 State Water Plan](#) water conservation strategies for the year 2070 are projected to provide 2,344,541 acre-feet to help meet the projected needs for additional water supplies. This volume of water conservation represents 27.7 percent of the identified strategies to meet water supply needs in 2070. Irrigation conservation accounts for 15.7 percent, municipal conservation is 9.6 percent and other conservation is 2.4 percent. Reuse strategies add an additional 14.2 percent (1,106,614 acre-feet) of potential supplies in 2070 and includes indirect reuse, other reuse and direct potable reuse.

**Best Management Practices**

- Agriculture
- Literature
- Resources
- Education
- Outreach
- Municipal
- Workshops & Presentations
- Conservation Staff

**Drought**

- Rainwater Harvesting
- Water Reuse

- With “Stage 2” Restrictions increased in August and more could be added in autumn. water conservation is critical.
- Learn more at the [Texas Water Development Board’s Conservation Page](#)

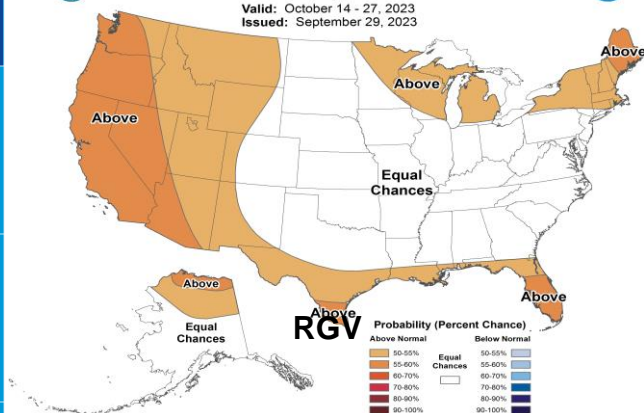


# October 2023: Confidence High on Warmth; Low on Rainfall



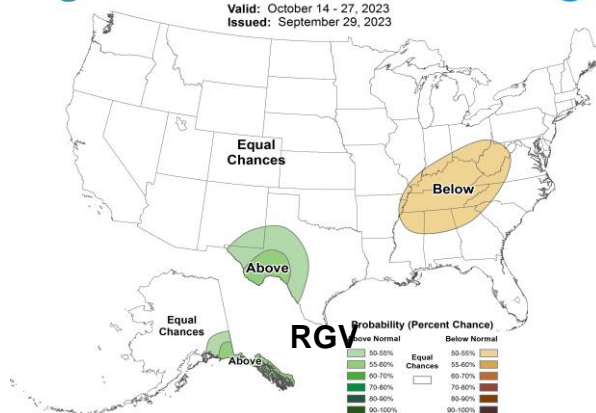
## Weeks 3-4 Temperature Outlook

Valid: October 14 - 27, 2023  
Issued: September 29, 2023



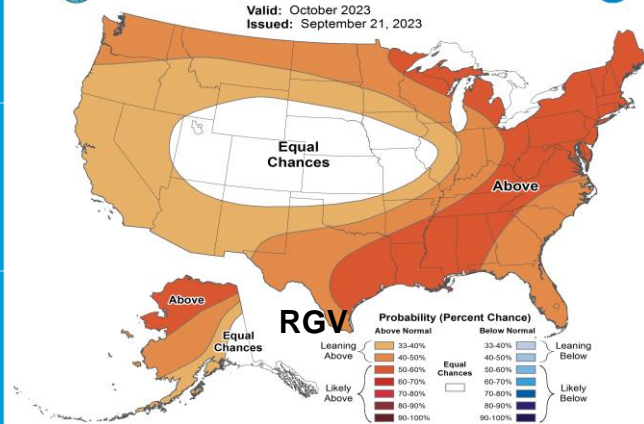
## Weeks 3-4 Precipitation Outlook

Valid: October 14 - 27, 2023  
Issued: September 29, 2023



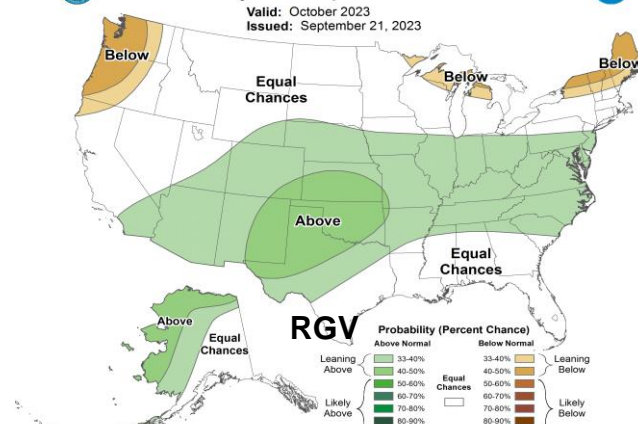
## Monthly Temperature Outlook

Valid: October 2023  
Issued: September 21, 2023



## Monthly Precipitation Outlook

Valid: October 2023  
Issued: September 21, 2023

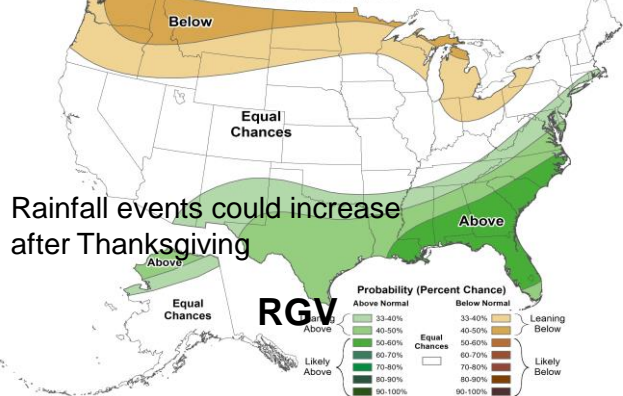
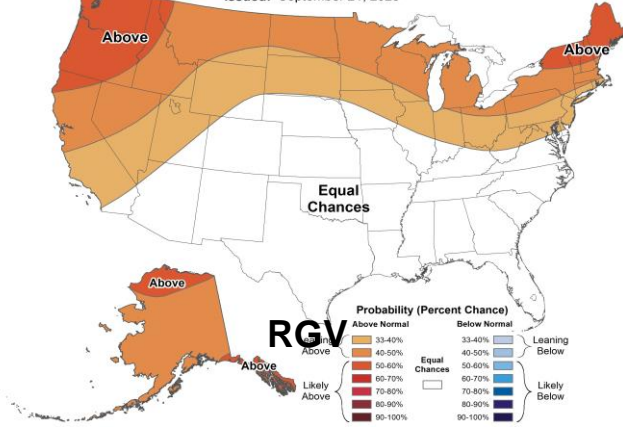


**Bottom Line:** The pattern will become more changeable, with the persistent “La Canícula” (“heat dome” ridge since June 9<sup>th</sup> shifting and/or being replaced by other flow patterns that may bring rain and cooling fronts as the month progresses. Unknown is the potential for eastern Pacific recurving tropical cyclones/moisture.

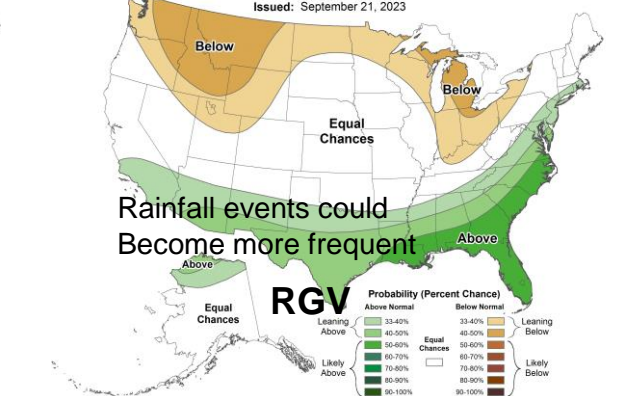
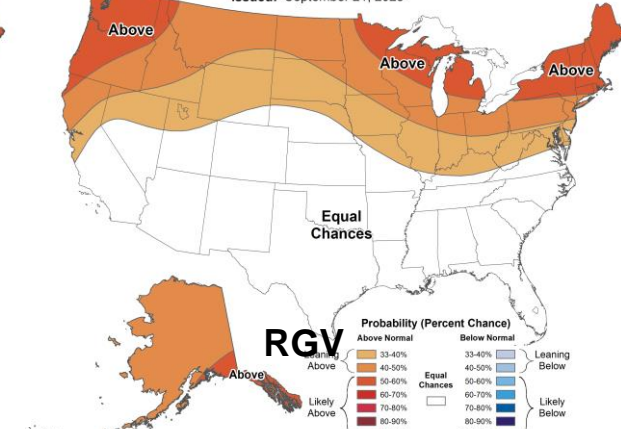
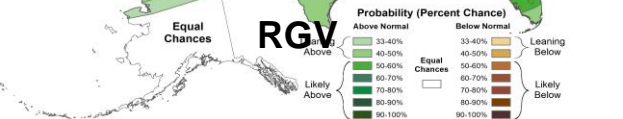
Confidence is **low** for rainfall in October for the RGV. Tropical-infused rain events (along fronts or a feed of moisture from the southwest Gulf/eastern tropical Pacific) **could quickly push values above monthly averages** (1.5 to 4 inches from east to west), while stronger fronts could push moisture away and be **followed by weeks of dry air, reducing monthly rain to below average.**



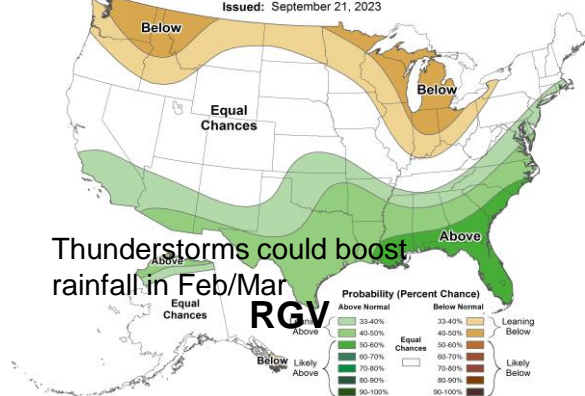
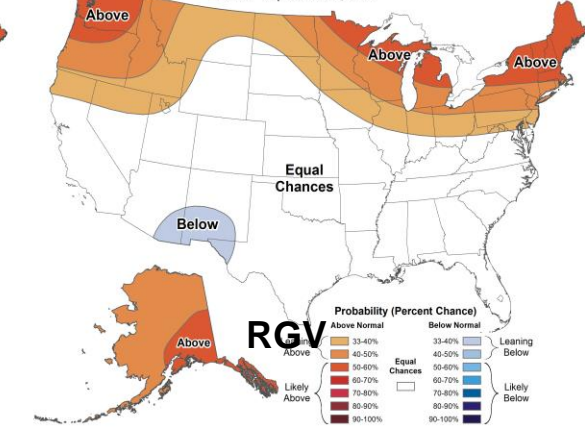
# Late Autumn 2023 through Early Spring 2024: Transition to Cooler/Wetter? Confidence Still Mixed.



Rainfall events could increase after Thanksgiving



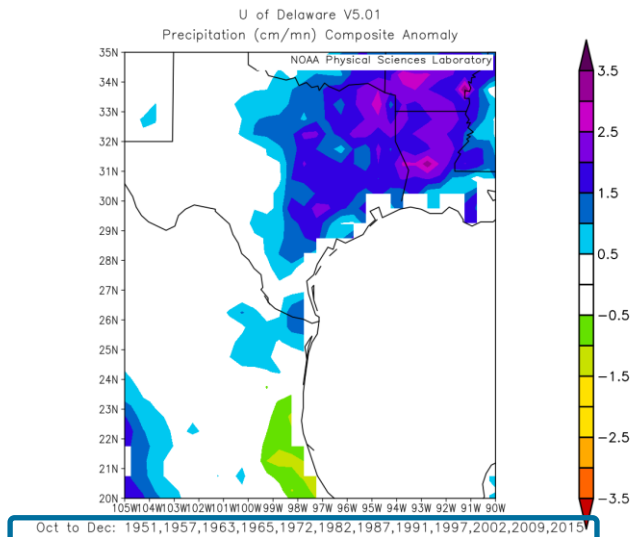
Rainfall events could become more frequent



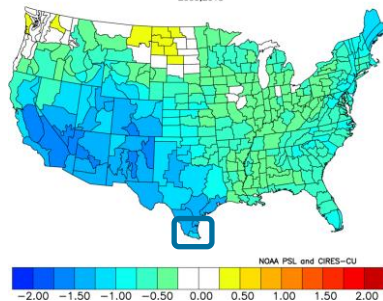
Thunderstorms could boost rainfall in Feb/Mar



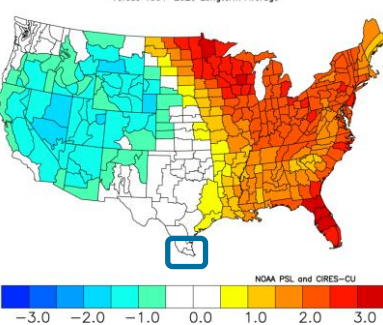
# Comparing Similar Strengthening El Niño October-December Periods



NOAA/NCEI Climate Division Composite Temperature Anomalies (F)  
Versus 1991–2020 Longterm Average  
Oct to Dec 1951, 1957, 1963, 1965, 1972, 1982, 1987, 1991, 1997, 2002, 2009, 2015

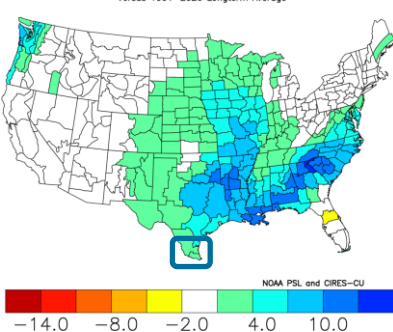


NOAA/NCEI Climate Division Composite Temperature Anomalies (F)  
Oct to Dec 2009, 2015  
Versus 1991–2020 Longterm Average



- Left: top – composite temperature anomalies for moderate/strong/"super" October-November El Niños since 1950.
- Left bottom: Same, except for most recent cases (2009 and 2015).
- Below: October-December precipitation anomalies (positive) for most recent cases (2009 and 2015)

NOAA/NCEI Climate Division Composite Precipitation Anomalies (in)  
Oct to Dec 2009, 2015  
Versus 1991–2020 Longterm Average





# Bottom Lines

- Sufficient inflows from Mexican reservoirs serving the Lower Rio Grande watershed can only be achieved from a **recurring eastern Pacific hurricane that drops copious water over a few days, or multiple rounds of tropical-type rains along slow-moving fronts**. Without these, **combined share of water in Amistad and Falcon will continue at or near Stage 2 triggers through November and perhaps into December**. Water conservation, smart irrigation, and rainwater harvesting are important actions to continue.
- **Severe to extreme drought starts October**. Future evolution will depend on the pattern and rainfall directly on the RGV. Tropical moisture feeds along fronts or from remnant eastern Pacific tropical events could put a dent into the drought by one category. However, fronts with limited moisture followed by prolonged spells of warm weather with low humidity would keep at least Severe conditions deep into autumn and perhaps longer. Confidence is low/uncertainty high on which outcome occurs.
- “From drought to flood and back again”. That has been a recurring story across the Rio Grande Valley since 2018, and despite the calendar moving out of the “rainy” season, just one or two energy waves **could drop inches of rainfall and leave feet of water depth** in poor drainage locations through October. Review your flood safety tips.
- There will be **cold fronts and cold snaps**, likely to favor occasional, rather than frequent, chilly drizzle events. Sharp changes of 30 to 60 degrees (apparent temperature change) from day to day are possible. December is most likely; “feels like” temperatures **could occasionally dip to or below 30**. A freeze/hard freeze is unlikely.
  - Pelicans roosting Bahia Grande north of the Gayman Bridge along SR-48 could be impacted following sharp ‘northers in late November through December, with light rain/drizzle.